

# Silica in Abrasive Blasting and Rock Drilling

## Hazard Alert



One of the most dangerous kinds of dust you can breathe is crystalline silica. Silica is the same as quartz. Sand used for abrasive blasting has a lot of silica in it. You get silica dust when you drill in most kinds of rock or when you dry cut masonry or concrete.

### The Hazards

In the lungs, silica scars air sacs and keeps oxygen from getting in the blood. Silica also causes **silicosis**, which can kill you. Silica can cause shortness of breath. And it increases your chance of getting tuberculosis (TB) and lung cancer. Many industrial countries have restricted the use of silica sand for sandblasting.

You can get silicosis after 5 to 10 years of working without breathing protection and engineering controls around silica dust. Or you can get silicosis after a few weeks if you work in thick clouds of crystalline silica and you are not protected. (This happened to tunnel workers who cut through hard rock and were not protected.) You can be in danger even if you do not *see* dust. Silicosis can get worse years after you are away from the dust.

### What You Can Do

- **Wet down dry materials and surfaces before you work with them** or before you sweep them. Or use a HEPA vacuum. This will reduce some dust.
- **For abrasive blasting, replace silica sand with safer materials.** The U.S. government's National Institute for Occupational Safety and Health (NIOSH) says do not use sand or any abrasive with more than 1% crystalline silica in it. Specular hematite (iron oxide) is a good substitute; steel grit may be a good substitute also. (Scientists are still checking whether steel grit is safe for this work.)
- **When doing abrasive blasting, you need to use a type CE abrasive blasting respirator** (positive pressure/pressure demand, with an APF of 1,000 or 2,000). This respirator provides air from outside the blasting area. **Respirators must not be the main way you reduce exposures.** There should also be effective engineering controls and air sampling must be done during the work. Use only a **NIOSH-approved respirator** (If a respirator is NIOSH-approved, chemical cartridges, particulate filters, and the box it comes in will say "NIOSH". Self-contained breathing apparatus will have a NIOSH label on the backpack.)

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- **When drilling in rock that *may* contain silica, you may need a respirator.** The type of respirator you need will depend on the silica concentration levels.
- If respirators are used, **OSHA says you must have a full respiratory protection program.** This means proper selection and fitting of respirators, medical screening of workers for fitness to wear a respirator, and worker training to use the respirators. Correct storage and cleaning of respirators and an evaluation of the program are also needed.
- **Do not eat, drink, or smoke near silica.** Wash your hands before you eat, drink, or smoke.
- **Change out of your work clothes before you go home.** This limits the dust you and your family are exposed to.

**OSHA has rules about levels of silica** (and other dusts). For more information, call your local union, the Center to Protect Workers' Rights (CPWR) (301-578-8500 or [www.cpwr.com](http://www.cpwr.com)), the National Institute for Occupational Safety and Health (1-800-35-NIOSH or [www.cdc.gov/niosh](http://www.cdc.gov/niosh)), or OSHA (1-800-321-OSHA or [www.osha.gov](http://www.osha.gov)). Or go to [www.elcosh.org](http://www.elcosh.org).

Ask to see CPWR's hazard alert on *Safe Work with Power Saws*. (You can get hazard alerts in English or Spanish.)

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